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Leakage current paths in PV transformer-less single-phase inverter topology and its mitigation through PWM for switching (Article)

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Abstract

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The Photovoltaic (PV) is a part and parcel and well known for cost-effective and easy to operatefeatures when it is used with transformer-less inverterbased grid-tied distribution generation systems. It reduces the leakage current issue that actually occurs making paths from PV penal to ground. In this paper has been addressed this issue as main problem for reducing leakage current. Moreover, here iscompared the proposed topology's results to AC and DC-based transformer-less topologies. The possibilities of larger number of leakage current paths indicatepower loss, which is the focus of work in this paper for different switching conditions. The results on leakage current paths using PSpice with different parasitic capacitance values from inverters of different topologies are compared with the simulation results of the topology proposed in this paper.

Author keywords

Common mode voltage EMF filter Inverter Leakage current Photovoltaic panel PWM

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